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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,946	07/30/2003	Joong-Cheol Bang	59228-8002.US01	1778
37815	7590	01/11/2005	EXAMINER	
PERKINS COIE LLP			LEO, LEONARD R	
BOX 2168			ART UNIT	
MENLO PARK, CA 94025			PAPER NUMBER	

3753

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,946

Applicant(s)

BANG, JOONG-CHEOL

Examiner

Leonard R. Leo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of the invention of Group I in the reply filed on October 18, 2004 is acknowledged. The traversal is on the ground(s) that product can only be made according to the method claims. This is found persuasive because, the product claim recites a "single sheet" forming a tube assembly. The requirement is withdrawn.

Drawings

Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "pairs of radiating fins" in claims 3 and 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing

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should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 7-8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yukitake. Regarding claims 1 and 6, inherently, radiating fins are disposed between adjacent tube assemblies of Yukitake (column 1, lines 4-7). Regarding claim 8, Figure 6 of Yukitake discloses the first and second tubes formed simultaneously.

Claims 1, 6-7 and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Krupa et al (Figure 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yukitake or Krupa et al in view of Halstead et al.

Yukitake or Krupa et al discloses all the claimed limitations except pairs of radiating fins.

Halstead et al discloses a heat exchanger comprising a plurality of tube assemblies 112 stacked alternately with a plurality of radiating fins 100, wherein the radiating fins may be composed of a forward and aft segment (column 9, lines 53-59) for the purpose of achieving a desired heat exchange.

Since Yukitake or Krupa et al and Halstead et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Halstead et al would have been recognized in the pertinent art of Yukitake or Krupa et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Yukitake or Krupa et al pairs of radiating fins for the purpose of achieving a desired heat exchange as recognized by Halstead et al.

Regarding claim 5, Figure 6 of Halstead et al discloses a tube assembly 112 having a first tube 112c with a plurality of passages and a second tube 112a. In the combination of references, it would have been obvious to one of ordinary skill in the art to eliminate the inner fins in the

device of Yukitake or Krupa et al for the purpose of achieving a desired heat exchange.

Furthermore, it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184.

Claims 3-5 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yukitake or Krupa et al in view of Watanabe et al.

Yukitake or Krupa et al discloses all the claimed limitations except pairs of radiating fins.

Watanabe et al discloses a heat exchanger comprising a plurality of tube assemblies 1 stacked alternately with a plurality of radiating fin pairs (column 7, lines 54-58) for the purpose of achieving a desired heat exchange.

Since Yukitake or Krupa et al and Watanabe et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Watanabe et al would have been recognized in the pertinent art of Yukitake or Krupa et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Yukitake or Krupa et al radiating fin pairs for the purpose of achieving a desired heat exchange as recognized by Watanabe et al.

Regarding claims 4 and 13, Watanabe et al discloses radiating fins 2 having longitudinal slits 31a (Figure 18) or 41a (Figure 19).

Regarding claims 5 and 14, Figure 9 of Watanabe et al discloses a tube assembly 1 having a first tube 3a with a inner fins 21 and a second tube 4a. In the combination of references, it would have been obvious to one of ordinary skill in the art to eliminate the inner fins in the device of Yukitake or Krupa et al for the purpose of achieving a desired heat

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exchange. Furthermore, it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184.

Regarding claim 11, Watanabe et al discloses longitudinal slit 5 between the first tube 3a and the second tube 4a. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a plurality of slits, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *In re Harza*, 274F.2d 669, 124 USPQ 378 (CCPA 1960). Plural slits would provide plural connections to provide increased rigidity in the tube versus a single slit.

Conclusion

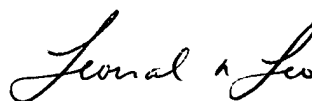
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3753

January 9, 2005